

JOINT COMMENTS, PSST-OPERATOR ADVISORY COMMITTEE

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Service Rules for the 698-746, 747-762 and)	WT Docket No. 06-150
777-792 MHz Bands)	
)	
Implementing a Nationwide, Broadband,)	PS Docket No. 06-229
Interoperable Public Safety Network in the 700)	
MHz Band)	
)	
Amendment of Part 90 of the Commission's)	WP Docket No. 07-100
Rules)	

JOINT COMMENTS

I. INTRODUCTION AND SUMMARY

The combined Comments of the following parties to the above captioned proceeding (hereafter, the “Operators” and “interested parties”) are filed pursuant to Sections 1.106 (b) (1) and 1.415 of the Commission’s rules (47 CFR §§ 1.106 (b) (1), 1.415):

Operators

- City of Chesapeake (VA)
- Washington D.C.
- State of Iowa
- City of Mesa (AZ)
- State of Oregon
- Pembroke Pines (FLA)
- City of San Antonio (TX)
- City of Seattle (WA)

Interested Parties

- State of AZ Government Information Technology Agency
- City of Tucson (AZ)

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- State of Delaware Department of Safety and Homeland Security
- District of Columbia Homeland Security and Emergency Management Agency

Each of the Operators has applied for a waiver in this proceeding allowing early deployment of broadband networks in the 700 MHz public safety broadband spectrum (763-768 MHz and 793-798 MHz); most have been granted such a waiver. Interested parties are public safety groups who partner with the operators.

Operators and interested parties comment here on the Fourth Further Notice of Proposed Rulemaking released on January 26, 2011 (*“Notice”*),¹ explaining that the Commission should refrain from adopting any requirements with regard to the technical issues and questions raised in the *Notice* until a nationwide network governance entity (*“NNGE”*), broadly accepted by public safety agencies nationwide, is established and endorses Commission adoption of such requirements.

Operators and interested parties do not comment at the level of detail suggested in the *Notice* because resolving the bulk of the specific, detailed issues in the *Notice* first requires overarching decisions regarding nationwide governance, architecture and systems engineering, as explained below. Specifically, the NNGE must embody an integrated governance process for interoperability planning, which should include a network architecture plan, a standards plan, a systems engineering plan and business case analysis. The Commission should defer to the guidance of the NNGE, embracing a more fluid, iterative approach to achieving interoperability, one that is better suited to the task

¹ In the Matter of Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, Amendment of Part 90 of the Commission’s Rules, *Third Report and Order and Fourth Further Notice of Proposed Rulemaking*, WT Docket No. 06-150, PS Docket No. 06-229, WP Docket No. 07-100 FCC 11-6 (rel. Jan. 26, 2011).

than the traditional regulatory process. Consistent with this approach, the Commission should focus its efforts on maximizing regional/tribal network operators' flexibility to implement network management and business models that are most advantageous for the (regional/tribal) network, refraining from regulation that would limit potential users and uses on the network.

Finally, while Operators and interested parties support the Commission's basic conclusions that the regional/tribal networks should employ 3GPP LTE technology and the E-UTRA air interface, we urge the Commission to postpone out-of-band emissions requirements until the status of the Upper 700 MHz D Block is resolved.

II. THE COMMISSION SHOULD NOT IMPOSE NETWORK REQUIREMENTS UNLESS ENDORSED BY THE NATIONWIDE NETWORK GOVERNING ENTITY.

Though the technical issues and questions raised in the *Notice* are important and must be addressed during the planning of the interoperable nationwide network, the Commission should refrain from adopting any conclusions or requirements with regard to them until a nationwide network governance entity ("NNGE") is established that is broadly accepted by public safety agencies nationwide, and that entity endorses regulatory adoption of such conclusions and requirements. Operators and interested parties feel strongly that, in order to be effective and broadly accepted by public safety agencies nationwide, the NNGE must include substantial representation of government entities such as Operators and interested parties that will be responsible for deploying, accepting, maintaining, operating and providing network and service management for the regional/tribal networks that will comprise portions of the nationwide interoperable network. The NNGE must not be a Commission-controlled entity; rather, the

Commission should support the NNGE in its governance duties by adopting regulatory requirements endorsed and requested by the NNGE, if the NNGE elects to make such a request. In short, the Commission should not determine and impose its own view of the best resolution for the myriad of issues raised in the *Notice*; rather, it should support the NNGE by sharing its technical expertise, clearing regulatory hurdles, and bringing its legal authority to bear on the nationwide network as requested by the NNGE to achieve and maintain interoperability.

A. The Report and Order and the Notice Put the Cart Before the Horse.

The NNGE is critical to resolving the issues raised in the *Notice*; indeed, it is the NNGE, not the Commission, that should make the decisions contemplated in the *Notice*. To a large extent, the questions posed in the *Notice* are highly detailed and technical in nature. Specific technical decisions often have broad policy implications. The questions posed in the *Notice* cannot be appropriately addressed until a governance process for planning is established and that process has developed a nationwide architecture plan, a standards plan, a systems engineering plan and a business analysis plan. Doing otherwise, as the Commission begins to do in the *Report and Order* and proposes to continue in the *Notice*, places the cart before the horse.

A simple example readily illustrates the importance of governance to resolving otherwise technical issues. Consider the technical requirement in the *Report and Order* that regional/tribal networks support both the Gz and Gy interfaces.² These interfaces are used for billing and charging across different networks—Gy for online or prepaid charging (common in Asia), and Gz for offline or postpaid charging (predominant in

² *Report and Order*, ¶ 12.

North America). Whether to implement one or the other—much less both—depends on whether public safety entities will charge each other for roaming service, and if so, how they will bill. The NNGE must resolve that question (whether there will be charging among public safety entities) before it will make any sense to consider a Gy or Gz interface requirement. Though requiring both interfaces may be a way of hedging bets as to which charging arrangement (if any) will eventually be adopted, it adds unnecessary cost, complexity, and time to the deployment of the network. Such waste is the result of a rushed, inadequately planned approach to network governance and design.

Governance and Planning Described.

The importance of placing governance and planning before detailed design and technical specifications is further clarified by an appreciation for the type of planning required for a functional, efficient network. Even before the NNGE can begin its planning work, it must establish and document an *integrated governance process for interoperability planning*. This process will clearly define the roles, responsibilities, and expected inputs / outputs of specific organizations in the NNGE's interoperability planning, including change management. Only once this governance process is in place can the NNGE undertake the extensive and complex planning that lies ahead.

There are four general planning areas that the NNGE will have to address in order to achieve the goal of an interoperable nationwide network in an efficient and rational fashion. First, it will need to adopt a nationwide LTE public safety broadband *network architecture plan* for the first phase of interoperable network service, with a roadmap toward future phases of network evolution, such as those that would include IMS or voice over LTE. Such a plan would include clearly defined interoperability use cases

implicated at the nationwide level for mobile user network services, applications, devices and content; nationwide network operations, management and customer service; and evolution of network elements. The architecture would specify network elements and interfaces that are well defined in the 3GPP standard, indicate decisions regarding the menu of options presented in applicable standards, identify those standard elements and interfaces that are not required, and specify proprietary (non-standard) functions and interfaces needed for interoperability.

Second, the NNGE would create and adopt a documented *standards plan*, where it would identify which of the approximately 800 3GPP Release 8 technical specifications are required for the first phase of interoperable network service. It would also identify any required technical specifications from other standards bodies, including GSMA, ATIS, PTCRB, Open Mobile Alliance, NIST / PSCR, and MSF.

Third, the NNGE would create and adopt a documented *systems engineering plan* to achieve the network envisioned in the other planning documents. The systems engineering plan would include public safety-specific performance requirements, key performance indicator (“KPI”) definitions, public safety feature and service requirements to meet interoperability use cases specified in the architecture plan, a test plan for assuring interoperability, and a plan for sustaining, maintaining and upgrading the network.

The fourth planning area the NNGE will need to address is *business case analysis*. The NNGE must, to the extent implicated at the nationwide level, analyze the costs and benefits of alternative solutions within the architecture, standards and systems engineering plans described above. As part of this analysis, it must identify and consider

the financial constraints upon meeting requirements and achieving desired system capabilities.

B. Governance and Planning Enable the Commercial Customer Experience.

As we strive to achieve a future interoperable nationwide public safety broadband network, we are all thoroughly familiar with the customer experience provided by today's nationwide commercial cellular services. As commercial subscribers, we take certain features for granted. These seemingly simple features required governance decisions and planning before they could be technically implemented—and after initial implementation, they required governance to keep them operable as they further evolved. For example:

- When a roaming user cannot connect to the network, there is a number to call, and there is somebody responsible for troubleshooting.
- Network security is managed on a day-to-day basis.
- Devices are widely available and they work nationwide.
- There is a number to call to manage any subscription issues.
- It is clear to subscribers how to pay for service.
- The network generally provides a given level of service.
- When technology advances, the network still works.
- The spectrum the network uses is maintained in clear and usable condition.

Though many of these features are fundamental for “nationwide operability” in a commercial service provider’s network, the same features present challenges for “nationwide interoperability” in a public safety network that spans multiple local, regional, tribal jurisdictions. The particular requirements of public safety users, such of push-to-talk, also pose challenges beyond those addressed in commercial networks.

C. The Regulatory Process Is Ill-Suited to Integrated Planning for Interoperability.

The topics and the questions raised in the *Notice* are all relevant, but answering them by way of the usual notice, comment and reply comment regulatory process is inefficient and inadequate. A better approach would be to divide the issues identified in the *Notice* into three groups, then address them starting with governance and moving to those issues driven by governance, falling under the rubrics of “architecture and standards” and “systems engineering requirements,” as follows:

Governance Issues

- Governance Rules
- Users and Uses
- Interoperability
- Legacy Public Safety Narrowband Interconnect
- Applications (operational use cases)
- Sustainability Plan (funding for both operations and capital upgrades)

(Governance Driven) Architecture and Standards

- Architecture Framework
- Air Interface
- Mission Critical Voice
- Roaming / PLMN IDs
- Priority Access / QoS
- Devices / Multiple Modes
- Security
- Deployable Assets

(Governance Driven) Systems Engineering Requirements

- Interconnectivity Links
- Performance Specifications
- Coverage and In-Building Reliability
- Conformance Test and Interoperability Test
- Out of Band Emissions / Interference
- Robustness

The NNGE should address each topic area, but not as the Commission would through its regulatory process. Instead, the NNGE should pursue an approach with frequent iterative feedback loops, so that the interoperable nationwide network can efficiently accommodate as necessary any changes in technology, requirements and prevailing market conditions. In this approach, the NNGE is constantly reviewing, learning, and revising its planning on architecture, standards, systems engineering, and business case in order to achieve and maintain interoperability.³ It is a living, breathing, ongoing process that stands in stark contrast to the less fluid process of a traditional regulatory proceeding.

III. THE COMMISSION SHOULD SUPPORT THE NETWORK BY PROVIDING MAXIMUM FLEXIBILITY TO OPERATORS.

Rather than adopting detailed requirements and restrictions as proposed in the Notice, the Commission should focus its efforts on maximizing the regional/tribal network operators' flexibility to implement network management and business models that are most advantageous for the (regional/tribal) network. Primarily, Operators and interested parties urge the Commission to maximize network operator flexibility by declining to regulate the network, but it could also help by adopting a broad reading of relevant statutory language.

First, the Commission should impose limits on allowable users and uses within the statutory framework only where those restrictions are truly necessary to ensure nationwide interoperability and are endorsed for codification by the NGGE. Network

³ Though the NNGE may follow any of a number of such models, one example that includes all of these elements is that described in *Achieving Interoperability in Critical IT and Communications Systems*, edited by Robert DeSourdis, Jr., et al., Artech House, 2009.

operators are best positioned to make network management and business decisions that are most advantageous for the network and its public safety users. The Commission should not impose restrictions based upon types of use (*e.g.* fixed or mobile); rather, the Commission should leave it to the network operator to determine how best to manage those uses.⁴

In addition, the FCC should not restrict network operators' provision of service to specific groups of subscribers (such as "secondary" users or federal users), including any requirement that subscriptions flow through a nationwide subscription manager or other centralized entity, unless that user group requires such an arrangement and the NGGE endorses Commission codification of that arrangement. The Commission should provide regional/tribal network operators the flexibility to offer services directly to any and all users within the broadest valid interpretation of Section 337 of the Communications Act.⁵ The breadth of that interpretation particularly impacts two areas of great importance to many regional/tribal network operators: the ability to provide unrestricted service as the operator deems appropriate to federal users and users in critical infrastructure industries ("CII"). As described above, a key aspect of network planning will include business case analysis, and operators (both commercial and public safety) know well the importance of a broad subscriber base to sustaining a network. If the Commission wants to help

⁴ See In the Matter of Request for Waivers of Various Petitioners to Allow the Establishment of 700 MHz Interoperable Public Safety Wireless Broadband Networks, PS Docket No. 06-229, Petition for Reconsideration of City of Charlotte, NC, District of Columbia, Iowa Statewide Interoperable Communications System Board, State of New Jersey, City of Mesa, AZ, State of New Mexico, State of Oregon, City of Seattle (Jan. 10, 2011).

⁵ 47 U.S.C. § 337.

operators sustain the network after deployment, it should interpret Section 337 as broadly as possible to ensure that operators can add CII to their subscriber rolls.⁶

CERTAIN BASIC REQUIREMENTS ARE ACCEPTABLE.

Even in advance of the establishment of the NNGE, Operators and interested parties do recognize the importance of adopting certain basic standardizing requirements and support the Commission's decision to adopt them. First among them is the requirement that all networks on the public safety broadband spectrum must embrace 3GPP LTE as the common and standardized technology platform. Though this requirement does not itself require interoperability, it is a basic and critical step that is helping create focus and momentum in the marketplace for Band Class 14 equipment. Importantly, the Commission did refrain from adopting this requirement until there was broad endorsement of 3GPP LTE among the nationwide public safety community.

Additionally, and for similar reasons, Operators and interested parties support the Commission's adoption of LTE E-UTRA as a common air interface. Operators and

⁶ CII subscribers would use the network to provide two types of services: those that support the CII role in protecting life, health and property (*e.g.*, restoring downed lines after a hurricane, assisting fire fighters on scene by turning off utilities during response to a fire), and all other services that support day-to-day internal CII activities and business (*e.g.*, meter reading). The former is authorized directly by Section 337(f), which authorizes use of the spectrum for services "the sole or principle purpose of which is to protect the safety of life, health, or property." The Commission has previously (in permitting commercial use of the public safety spectrum by the future D Block winner) and should again interpret the statute broadly, in this case to allow operators to permit CII communications related to this second type of service onto the network under priority or preemption terms acceptable to the operator based on the operator's network management requirements. Compliant with Section 337(f)(1)(B) and (C), this category of service would be authorized by a public safety government entity and would be provided only internally to the CII subscriber entity, not commercially to the public. 47 U.S.C. § 337(f)(1)(B) and (C).

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interested parties caution, however, that the Commission should not require any particular configuration(s) of that interface in the absence of endorsement by the NNGE.

Finally, Operators and interested parties tentatively support the Commission's proposed adoption of out-of-band emissions requirements for the current public safety broadband spectrum allocation. However, given the potential impact of spectrum block size on interference risk, Operators and interested parties suggest that the Commission await resolution of the D Block issue until adopting any such requirements.

IV. CONCLUSION

For the reasons described above, Operators and interested parties urge the Commission to refrain from adopting any requirements with regard to the technical issues and questions raised in the *Notice* until the NNGE is established and endorses Commission adoption of such requirements. In addition, Operators and interested parties urge the Commission to reconsider the *Report and Order* and delay any order of specific technical requirements for the support of LTE interfaces such as those set forth in paragraph 12.

Respectfully submitted,

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